

## **REMARKS**

Applicant appreciates the consideration of the response to the previous Office Action. The applicant has thoroughly studied the Office Action of September 4, 2009 and has submitted this amendment in response to that Office Action. Reconsideration of this application, as amended, is earnestly requested.

Claim 58 is amended as shown above, and claims 77-101 have been withdrawn. Claims 1-76 remain pending in the application with claims 1 and 58 being the only independent claims.

Claims 1-76 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Iba et al. (US 5,121,669) in view of Pash (US 3,783,731). These rejections are respectfully traversed.

Claim 58 is amended to correct informalities.

### **103 Rejections**

Independent claims 1 and 58 are rejected as being unpatentable over Iba in view of Pash.

#### **Independent claim 1**

Independent claim 1 recites a “musical instrument comprising: a melody string; a plurality of drone strings ... ; a melody string transducer ... generat[ing] an electrical melody string signal ... ; a drone string transducer associated with one or more drone strings ... generat[ing] an electrical drone string signal ... ; a plurality of curved frets ... to distinctly change the vibrating length of said melody string in response to user manipulation; and an interface adapted to provide electrical signals generated by said drone string transducer and said melody string transducer to a multi-channel mixer which responsively generates an outgoing audio output signal comprising a mix of received electrical signals.

In rejecting claim 1, the Examiner relies upon Iba to teach a melody string (FIG. 1, element 7), a melody string transducer (FIG. 1, element 10), and a multi-

channel mixer (col. 11: 9-44). However, Iba does not teach drone strings. The Examiner relies upon Pash to teach the drone strings (FIG. 1, elements 21a – 21c) and curved frets (FIG. 1, element 15). The applicant respectfully disagrees with the Examiner that Iba and Pash, individually or in combination, teach all the limitations of independent claim 1.

Iba is directed to an electronic stringed instrument employs a plurality of sensors or monitors for instrument performance including at least one of a detector for detecting that a string of the instrument is vibrated, an apparatus for evaluating a string-vibration strength or a string touch, an apparatus for discriminating a fret operation position on a fingerboard or a fundamental frequency of a vibration of the vibrated string, a tremolo arm sensor, and a string-bending sensor. In particular, Iba is directed at a guitar. Pash is directed towards an acoustic, chromatic, multiple stringed, musical instrument having features of conventional banjos, and also features of the sitar of India that are useful for teaching students of Eastern music on a conventional guitar-like instrument.

### **Curved frets**

A curved fret is a particular type of fret wherein the fret is raised above a finger board such that un-fretted strings may be strung underneath the fret. Curved frets are moveable to allow fine tuning of the fretted strings. (See, <http://en.wikipedia.org/wiki/Sitar>, accessed December 3, 2009 (“The sitar’s curved frets are movable, allowing fine tuning, and raised so that sympathetic strings (tarbs, also known as "tarif" or "tarifdar") can run underneath them. A sitar can have 21 22 or 23 strings, among them six or seven played strings which run over the frets.”)).

Both Iba and Pash teach frets fixed on a finger board. For example, Iba states “Fingerboard 6 on which frets 5 project is formed on the upper surface of neck 3” (col. 9: 32-34) in discussing the construction of the guitar. Further, Iba states at col. 20: 8-11 “The fret switch type electronic guitar is named after the

fact that a fret operation position (fret number) on a fingerboard is detected by switches embedded in the fingerboard.” Taken together, these statements imply that the frets are at fixed positions on the finger board; “fingerboard on which the frets project”, and “switches imbedded in the fingerboard.” Iba is completely silent whether the immovable frets stand proud of the fingerboard in such a manner that allows a set of strings to be strung beneath the frets.

Pash states “An elongated neck 14 is shown in FIGS. 1 and 2 as attached to the playing end of the body 11, and such neck is shown divided by frets 15 into a fret board 16; the longitudinally spaced apart frets 15, are shown in accordance with a conventional logarhythmic [sic] scale or chromatic pattern.” (See, col. 2: 29-35). Positioning the frets on the elongated neck to form a conventional logarithmic or chromatic pattern implies the frets are fixed and not movable. Further, Pash teaches that the strings are positioned above the frets (col. 2: 52-54, “The strings 21a-e are shown stretched across a bridge 22, with the strings extending from tail-piece 19, over bridge 22, thence with slight clearance (approximately one—eighth inch) over the frets 15.”)

Neither Iba nor Pash teaches curved frets. If the Examiner maintains the obviousness rejections based on curved frets, the applicant respectfully invites the Examiner to particularly point out where the references specifically teach curved frets.

### **Drone string transducer generating an electrical drone string signal**

Pash relates to an acoustic stringed instrument and does not teach transducers generating electrical signals from the drone strings.

The Examiner admits Iba does not have drone strings (see, OA, p. 4, “Iba et al. do not disclose the use of drone strings.”). Without drone strings, Iba cannot teach a drone string transducer generating an electrical drone string signal.

Therefore, neither Iba nor Pash, either individually or in combination, teaches a drone string transducer generating an electrical drone string signal.

**Multi-channel mixer generating an audio output signal  
comprising a mix of received electrical signals**

Iba teaches a plurality of transducers each generating an electrical melody string signal. See, FIG. 33, elements 133 and 134, and col. 11: 9-49. Each of the transducers is connected to a single analog-to-digital (A/D) converter and the signal from the A/D converter is further processed in the microprocessor 40M and is then stereophonically reproduced.

First, because there is only a single signal from the A/D converter, there is no mixing with another signal. Therefore is no multi-channel mixer, and because Iba does not teach drone strings, there cannot be any mixing of the electrical melody string signal with an electrical drone string signal.

Further, as can be seen from Iba FIGS. 7 and 42, the signal from each of the Iba pickups 10 is not used as a sound source but rather to produce a control signal. Specifically, the signal from each of the Iba pickups is directed to a pitch extractor 201 which is used to determine the pitch of the string vibration. The pitch value determined by the pitch extractor 201 is provided as a control signal to tone synthesizer "Sound Source" elements 204-205 which produce entirely new tones that are (after further processing) directed to the sound system 213. Thus, Iba's transducer signals never make it past the pitch detector, and are certainly not mixed as required by the present claims.

If the Examiner maintains the obviousness rejections based on the multi-channel mixer, the applicant respectfully invites the Examiner to particularly point out where the references specifically teach a multi-channel mixer.

### **Independent Claim 58**

Independent claim 58 recites music generating method comprising: providing a melody string and a plurality of drone strings ...; associating a melody string transducer with said melody string ...; associating a drone string transducer with one or more drone strings ...; coupling a plurality of curved frets to a neck of said musical instrument ...; and providing electrical signals generated by said drone string transducer and said melody string transducer to a multi-channel mixer which responsively generates an outgoing audio output signal comprising a mix of received electrical signals.

Claim 58 recites elements similar to those recited in claim 1, and as discussed *supra*, the references relied upon by the Examiner fail to teach a plurality of curved frets, a drone string transducer generating an electrical drone string signal, and a multi-channel mixer generating an audio output signal comprising a mix of received electrical signals.

For at least the above reasons, claim 58 is patentable over the cited references.

### **Claims in Condition for Allowance**

As set forth in MPEP 2143, to show a *prima facie* case for obviousness, all the prior art references, either individually or combined, must teach all the claim limitations. Neither Iba nor Pash teach a plurality of curved frets, a drone string transducer generating an electrical drone string signal, and a multi-channel mixer generating an audio output signal comprising a mix of received electrical signals., and applicants submit that a *prima facie* case for obviousness has not been shown and that claims 1 and 58 are patentable over the cited prior art as are claims 2-57 and 59-76 being dependent from an allowable base claim.

## **CONCLUSION**

In view of the above amendments and remarks, applicants respectfully request reconsideration and withdrawal of the rejections, and an early indication of the allowance of the claims. Applicants believe the claims are in condition for allowance and respectfully solicit favorable action.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein; and no amendment made was for the purpose of narrowing the scope of any claim, unless applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references.

If any points remain at issue that the Examiner feels may be best resolved through a telephone interview, the Examiner is kindly invited to contact the undersigned by telephone at (909) 621-2059 or by email at cwschmoyer@yahoo.com.

Respectfully submitted,

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By:           /C.W. Schmoyer/          

Craig W. Schmoyer  
Registration No. 51,007  
Attorney for Applicant(s)

Customer No. 035884